



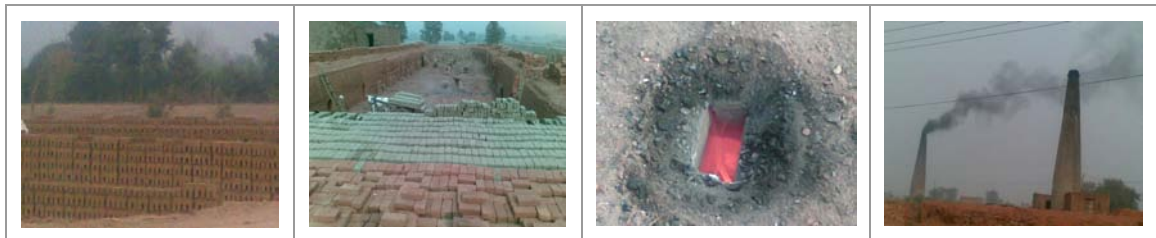
Study on Bricks
Market

January 20, 2010

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Study on Bricks Market

(Final Report)



Energy Efficient Brick Production Pakistan

January 20, 2010

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Research Design

Research Design

Objectives To have an insight of the brick industry in Pakistan

Methodology The study has been completed by employing two pronged methodology i.e. secondary research and expert interviews. The detail of each method is as under:

Secondary research was conducted to have data and information on macro factors, construction sector, size of bricks market, market trends and fuel consumption, etc. The information collected through secondary was incorporated to determine overall structure of brick market in Pakistan.

All relevant sources were explored for the required information. The following sources were found useful:

1. General internet search
2. Statistical Yearbook of Pakistan
3. Monthly Statistical Bulletins
4. Economic Survey of Pakistan
5. Pakistan Energy Yearbook
6. Yellow pages and trade directories
7. Any other source of value

Over 30 expert interviews/discussions were conducted to have information and opinion of related persons like brick producers & dealers, brick kiln association office bearers, architects and builders. The information and opinion gathered through expert interviews also reinforced and explicated the findings of secondary research.

Bricks Industry

Bricks Industry

Regions under study

The regions under study are:

1. Centre-to-Upper Punjab
2. NWFP

Out of 35 districts of the Punjab province, 18 exist in the Centre-Upper region. On the other hand, the NWFP province, including the Tribal Areas, consists of 28 districts.

The districts of Punjab are well populated, while those of NWFP are less populated.



The regions under study have the following districts:

Centre-Upper Punjab	NWFP
- Lahore	- Peshawar
- Sheikhpura	- Charsadda
- Nanakana	- Nowshera
- Faisalabad	- Mardan
- Gujranwala	- Swabi
- Sialkot	- Kohat
- Haifizabad	- Hangu
- Gujrat	- Karak
- Mandi B. Din	- Mansehra
- Toba Tek Singh	- Battagram
- Sargodha	- Abbotabad
- Mianwali	- Haripur
- Khushab	- Kohistan
- Chakwal	- Malakanad
- Jhelum	- Swat
- Rawalpindi	- Bunir
- Islamabad	- Shangla
- Attock	- Dir
	- Bannu
	- Lakki Marwat
	- Mohmanad
	- Khyber
	- Kurram
	- Orakzai
	- Bajour
	- North Waziristan
	- South Waziristan
	- D.I. Khan

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Regions under study (Contd.)

Pakistan's 170 million people constitute 6th largest population of the world. The Punjab is the largest province with 58% of overall population, i.e. around 100 million people. The Centre-Upper Punjab contains around 50 million population, while the population of NWFP province is around 30 million. Hence, around 80 million people reside in the two regions under study.

The Centre-Upper Punjab is altogether a plain region, while most of the areas of NWFP are mountainous. Fired bricks are the only source of construction throughout the Punjab region with a very limited usage of non-fired clay bricks and crop fibre in rural construction. On the other hand, the majority of districts in NWFP, being mountainous, consume stone pieces as a substitute to fired bricks.

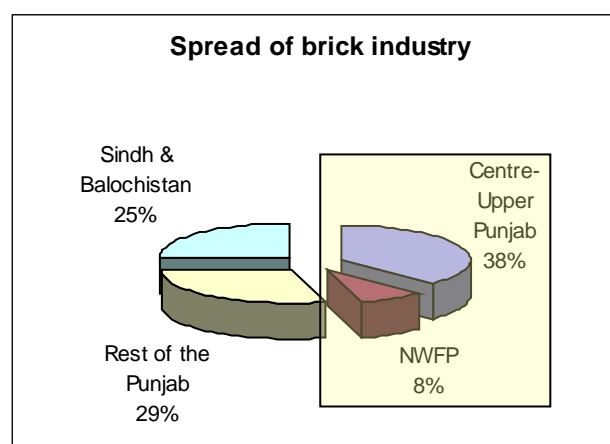
The major consumption centres for bricks in Centre-Upper region are the cities of Lahore, Sheikhpura, Gujranwala, Gujrat, Sialkot, Jhelum, Sargodha, Rawalpindi and Islamabad, while those in NWFP are the cities of Peshawar, Charsadda, Nowshehra, Mardan and D.I. Khan. Majority of brick kilns exists in or around these consumption centres.

Size of bricks Industry

In absence of data on bricks sector, the volume of the industry has been estimated through market sources. According to the market sources, around 12000 brick kilns exist throughout Pakistan. The geographical spread of kiln industry is as under:

	No. of kilns	Share (%)
Centre-Upper Punjab	4500	38
Rest of the Punjab	3500	29
NWFP	1000	8
Sindh & Balochistan	3000	25
Total	12000	100

[Source :Industry sources]



Among the estimated 12000 brick kilns in the country, some 5500, i.e. 46% are present in the two target regions.

Production capacity

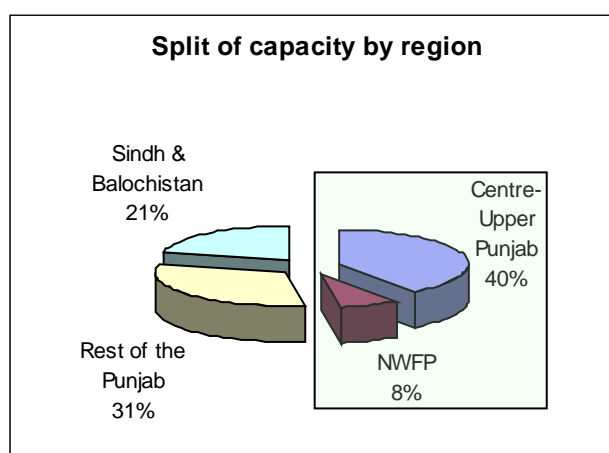
In Punjab, the capacity of brick kilns is relatively large, i.e. 0.5 to 0.9 million per circle, while the kilns in other provinces have smaller capacities, i.e. 0.4-0.7 million per circle. One circle is completed in around 30 days and each kiln completes 6-9 circles per annum depending on the facilities of green brick molding and storage in rainy season and extreme winter. Based on the operations of 10 months on average, the capacity of kilns has been worked out as under:

	No. of kilns	Annual capacity range per kiln (million)	Annual av. capacity per kiln (million)	Total capacity (billion)
	[A]	[B]	[C]	[AxC]
Centre-Upper Punjab	4500	5-9	7	32
Rest of the Punjab	3500	5-9	7	25
NWFP	1000	4-7	5.5	6
Sindh & Balochistan	3000	4-7	5.5	17
Total	12000	-	-	78

[Source : Estimates based on industry opinion]

Around 12000 brick kilns in the country have overall capacity of producing around 78 billion fired bricks per annum.

The split of capacity is as under:



The regions under study have capacity of producing around 38 billion fired bricks per annum that makes 48% of the nation-wide capacity.

Bricks production

The crises in bricks industry during 2007-08 caused the closure of many kilns. Incorporating the impact of these closures, the annual production by the kiln industry has been estimated as under:

	Total no. of kilns	No. of kilns in operation	Av. annual production per kiln (million)	Total production (billion)
	[A]	[B]	[C]	[BxC]
Centre-Upper Punjab	4500	3500	7	25
Rest of the Punjab	3500	2600	7	18
NWFP	1000	700	5.5	4
Sindh & Balochistan	3000	2200	5.5	12
Total	12000	9000	-	59

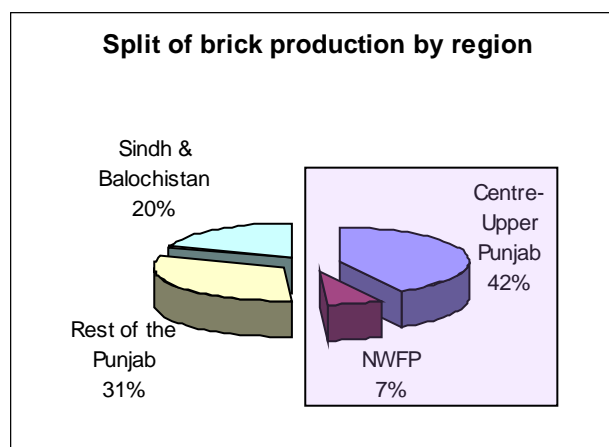
[Source : Estimates based on industry opinion]

Around 9000 brick kilns are presently operational in the country. These kilns collectively produce around 59 billion bricks per annum.



Closed vs. operational kiln

The split of production is as under:



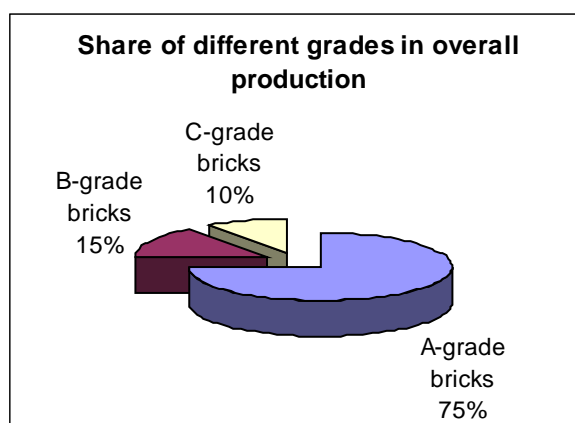
The kilns in the two target regions produce around 29 billion fired bricks per annum that make 49% of the national production.

Grades of bricks

The brick firing process in the conventional kilns brings out three grades in each batch, i.e. A, B and C grade bricks. The proportion of B and C grades varies from kiln to kiln and batch to batch. The share of A-grade bricks ranges from 60% to 90% in different kilns depending on the quality of coal used, quantity and timing of fuel feeding, type of clay and expertise of kiln workers. The average share and respective detail for each grade is as follows:

	Av. share in batch	Location in the batch	Reasons of being this grade	Properties
A-grade bricks	75%	Middle layers	The bricks receive required heat for the required time	Rightly baked, unbroken edges, right shape
B-grade bricks	15%	Upper layers	Heat at this location is lower than required	Lowly baked, de-shaped
C-grade bricks	10%	Lowest layers	Heat at this location is higher than required + the weight of entire batch is on these bricks	Excessively baked, cracked, de-shaped, mass excretion

[Source : Industry sources]



The production of different grades is as under:

	Av. share in a batch (%)	Overall production in Pakistan (billion)	Production in target regions (billion)
A-grade bricks	75	44	22
B-grade bricks	15	9	4
C-grade bricks	10	6	3
Total	100	59	29

[Source : Industry estimates]

The production of A, B and C grade bricks in the target regions is around 22, 4 and 3 billion bricks per annum, respectively.

B grade bricks have 25-30% low rates than A-grade bricks, while the price of C-grade bricks is nominal. A-grade bricks are used in general construction, while B-grade is supplied to low-affording rural areas for construction there. C-grade bricks are mostly used to support brick production process within the kiln or sold out to be used as brick crush

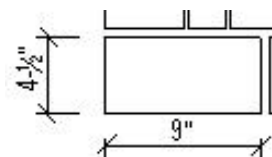
Types, shapes and sizes of bricks

The following types of bricks are produced in the country:

Types	Shapes	Sizes (Inch)	Uses	Suppliers	Fuel used
Solid building bricks	Rectangular	<ul style="list-style-type: none"> • 9x4.5x3 • 10x5x3 • 8.5x4.25x2.75 	<ul style="list-style-type: none"> - Buildings - Flooring - Street soling/canal lining 	All brick kilns	Coal and other non-fuel items
Plain and design fascia bricks	Rectangular, square, penta/hexagonal, tapered, round-edged hybrid, etc.	<ul style="list-style-type: none"> • 9x3x1 • 9x2.25x1 • 9x2.25x1.5 • 9x2.25x2.25 • 9x3x2.25 • 9x1.5x1.5, etc. 	- Building exterior	Specific brick kilns like Tariq Bricks, Niazi Bricks, Butt Brothers, Javed Bricks, Bismillah Bricks and Shabbir Enterprises, etc.	
Round pillar bricks	Half circular	• 9x4.5x3	Round pillars		
Hollow/cavity bricks	Rectangular	• 9x4.5x3	Special applications		

[Source : Industry/market sources]

The widely used size of building bricks is 9x4.5x3 inch, respectively and the same is considered the standard size in building and soling applications. The bricks of this size are stated to be most suitable and economical in both production and masonry processes. This size is easy to handle, place, fire, transport and installed. While 10x5x3 inch is the size that is the specified size for irrigation applications, i.e. canal lining, etc. However, the usage of this size, even for irrigation applications is presently nil. On the other hand, the kilns in Narowal and Sialkot have been reported to produce undersized bricks of 8.5x4.25x2.75 inch mainly because of higher heat requirement for baking clay there and its being a standard size there in those areas for long.



As a whole, 9x4.5x1.5 size is widespread and is almost all districts throughout the target regions of Punjab and NWFP, including Lahore, Gujranwala, Faisalabad, Islamabad, Peshawar and Nowshera. Solid bricks are considered to be the ideal building material, especially in load-bearing walls, while hollow bricks and cement blocks are not considered to be reliable in such walls.

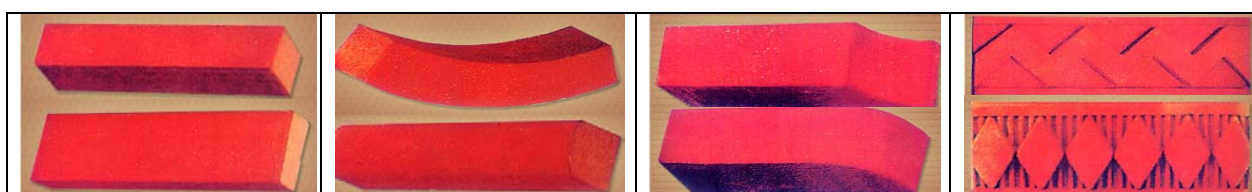
Special purpose bricks like fascia bricks, round pillar bricks and hollow bricks are produced in the same Bull's Trench kilns using similar fuels. Though fascia bricks can be fired in every kiln, highly skilled labor is required to mould, place and fire them. So, only a few kilns have real expertise in producing them. Such kilns are mainly located in Lahore and include Tariq Bricks, Niazi Bricks, Butt Brothers, Javed Bricks and Shabbir Enterprises. These bricks are fired with traditional fuel, i.e. coal and other supplementary materials like wood logs, wood dust and crop residues, etc.

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**Types,
shapes and
sizes of
bricks
(Contd.)**



Kiln in Lahore producing fascia bricks



Fascia Bricks produced in Lahore



Buildings decorated with fascia bricks

Fascia bricks are available in a variety of dimension, i.e. 9x3x1, 9x2.25x1, 9x2.25x1.5, 9x1.5x1.5, 9x2.25x2.25, 9x3x2.25 inch, etc., while design bricks are artistically designed to be used in combination with plain fascia bricks. These bricks are produced in a large assortment of sizes, shapes and designs. The market of fascia bricks is growing because of their prestigious look and durability.

Hollow bricks have a very specific application, i.e. low-weight structures and thermo-insulation. Currently the usage of these bricks is meager, rather negligible. The manufacturers of fascia bricks like Tariq Bricks, Niazi Bricks, Butt Brothers, Javed Bricks and Shabbir Enterprises also produce hollow bricks, but they don't maintain stock rather produce only the ordered quantity. Another producer in Hattar is also reported to have specialized facility for the production of hollow and fascia bricks.

Hollow bricks are generally produced in 9x4.5x3 inch size. Being costlier than normal bricks, the hollow bricks are used only in specialized application, i.e. in industries/restaurants to minimize heat exchange between production/furnace /kitchen area and other sections and offices. These are also reported to be used in large commercial projects in partition walls to have reduced dead load on building structure.

[Source : Industry/market sources]

Molding practices

Hand molding of green bricks is common practice across the brick kiln sector of Pakistan. Only a few kilns have been reported to use mechanized molding using Chinese, Korean and local machines/extruders. Such units exist in Lahore, Daska (Sialkot), Rahimyar Khan and Islamabad. The industry sources report that some units adopted the mechanized technology, but abandoned it because of problem of skilled labor, maintenance, load shedding and low acceptability of extruded bricks by builders and architects. Though the dimensional accuracy and compressive strength of mechanized bricks are better, the baking quality, water absorbency and bonding with cement compound are perceived to be lower than those of hand molded bricks. The machine molded bricks are also not preferred by end users mainly because of less durable plaster on the high finish surface of these bricks.

The producers of hand molded bricks state that excessive pressing of clay by molding machine affects the porous texture of bricks that requires extra fuel for firing and reduces the bonding capacity of finished brick. Furthermore, the issues like capital investment, non-availability of skilled operators, difficult access to repair facilities & spare parts and high maintenance cost prohibit the penetration of mechanized molding technology among the kiln sector. The kilns currently having green brick extruders mostly use them for the production of special high finish bricks, fascia bricks, design bricks, pillar bricks and hollow bricks. The common building bricks are mostly molded manually even at these kilns.

The only problem with hand molding practice is stated to be high dependence on labor. The labor related issues include non-availability of skilled molders, issuance of heavy advances, child labor concerns, bonded labor perceptions and undue supervision by labor department and NGOs. If these problems persist, the penetration of mechanized molding is likely to increase.

[Source : Industry sources]

Firing practices

The basic firing material used throughout the kiln industry is coal, while majority of kilns use supplementary materials as well. These materials differ from area to area depending on the easy and economic availability there. The supplementary materials include wood logs, wood dust (*boora*), rubber tyre, synthetic nylon shoes, corn cores, mango cores, cotton crop residues, sugar mills waste and fabric scrap, etc.

Due to specific composition of soil there, the brick producers in Southern Punjab use low quality coal of Lakhra (Sindh) supplemented by wood dust, corn cores, cotton crop residue and sugar mills waste in their kilns. Even a kiln in Pak Pattan has been reputed to have sole usage of wood dust for firing bricks. On the other hand, the usage of supplementary fuels is relatively low in Centre-Upper Punjab.



Coal unloaded at a kiln



Coal and wood dust



Firing in the kiln



Dark smoke due to low quality coal and supplementary materials

Pakistan has huge coal resources estimated at over 185 billion tones. The domestic coal generally ranks from lignite to sub-bituminous. The major sources include Chakwal, Choasaidan Shah and Khoshab in Punjab, while Quetta, Hernai, Shahwag and Dukki, etc. in Balochistan. The present production/extraction of coal in the country is around 4 million tonne. Brick kiln sector consume almost 40% of the locally produced coal, i.e. 1.6 million tonne per annum.

Further to the local production, over 6 million tonne of coal is imported as well. The imported coal is mostly used by cement, power and steel sectors. The countries of import include Indonesia, Australia, South Africa, Canada, China and Russia.

Presently, the price of local coal that is consumed by brick kilns ranges from Rs. 4500 to 9000 per tonne, inclusive of transportation, depending on the origin and quality of coal. Coal prices are increasing fast because of its strong demand vis-à-vis limited supply. The demand of coal in the country has increased as many industries, especially cement producers have shifted coal because of shortage of natural gas and high prices of furnace oil. While the supplies have been reduced as the labor in mines are fast shifting to their home towns in Swat and Afghanistan.

The growth in prices of coal has been reflected by the following index numbers over the years:

(Base year 2000-01 = 100)

	Index No. of average Ex-mine price during the year						
	2000-01	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Index No.	100	100	101.3	117	118	128	137
Growth per annum	-	-	1%	15%	1%	8%	7%

[Source: Statistical Yearbook of Pakistan / FBS Monthly Statistical Bulletin]

The average growth in brick prices has been recorded as 7% per annum.

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**Firing
practices
(Contd.)**

The cost of transporting coal from mines to the kilns has also gone high. This overall high cost has not only augmented the production cost but also increased the requirement of working capital. This has ultimately made the operations quite cost intensive resulting in inefficiency or closure of kilns with poor financial base.

Each kiln in the Centre-Upper Punjab is reported to need 80-100 tonne coal supplemented by other fuels for each circle of production, i.e. in around 30 days. The average firing cost at the kilns in the target regions stands at around Rs. 800-1000 per 1000 bricks.

None of the brick kiln in Pakistan is reportedly using natural gas for firing bricks as it is as inefficient in maintaining the required temperature, i.e. 1100-1150° C.

Bricks Market

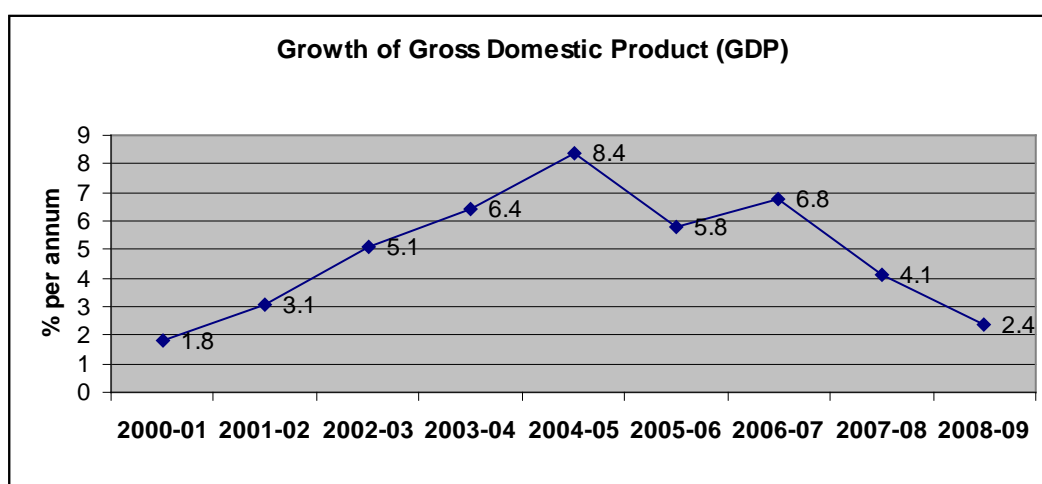
Bricks Market

Growth of economy

The growth of Pakistan's economy during the last 9 years has been as under:

GDP growth (%)								
2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
1.8	3.1	5.1	6.4	8.4	5.8	6.8	4.1	2.4

[Source: Economic Survey of Pakistan]



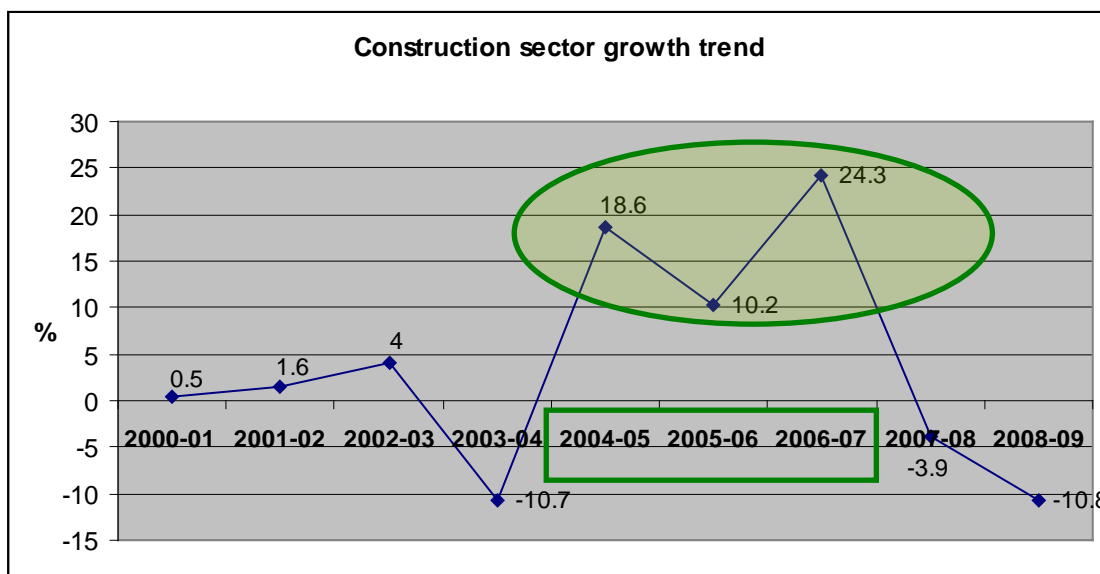
- The economy of Pakistan recorded excellent growth during 2002-03 to 2006-07 but it had to face decline afterwards, chiefly because of political uncertainty.
- The political instability and the resultant economic slowdown that started in 2007-08 are still going on and putting negative impact on different sectors including construction.

Growth of construction sector

The growth of construction sector during the current decade has been as under:

Construction sector growth (%)								
2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
0.5	1.6	4.0	-10.7	18.6	10.2	24.3	-3.9	-10.8

[Source: Economic Survey of Pakistan]



The construction sector of Pakistan had an average growth of 1.2% during 2000-01 to 2003-04. But the sector experienced a great boom grew during 2004-05 to 2006-07 when it grew at an average rate of 18% per annum. The growth was mainly because of construction activities generated by large public and private projects. Dozens of mega housing schemes were launched and developed in urban areas, like Lahore, Rawalpindi/Islamabad, Faisalabad, Hyderabad, Multan, Gujranwala, Sialkot and Sargodha, etc. All these projects, except those in Karachi, caused tremendous demand for bricks, while the projects in Karachi consumed cemented blocks. Similarly, dozens of highrise commercial buildings were also established during the same period. The volume of civil works in public sector, chiefly by the local governments was also immense during the same period.

The major housing projects launched, developed or partially executed during that period in Lahore include Bahria Town, Eden Villas, DHA (New phases), Green Forts, Izmir, Sukh Chayn, EME, Valencia, Central Park, Askari Villas and Saudi-Pak, etc. While the projects in Rawalpindi/Islamabad include Bahria Town, DHA (New phases), Canyon View, Highlands, Anchorage, Chak Shahzad, Soan Gardens, and Al-Haram City, etc.

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Growth of construction sector (Contd.)



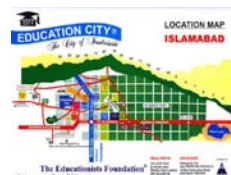
Sukh Chayn, Lahore



Lake City, Lahore



Paragon City, Lahore



Education City, Isbd.



Eden Projects, Lahore



The Centaurus, Islamabad



Creek Vistas, Karachi



Pace Circle, Lahore



Designs in up-scale ready-villa projects in Lahore and Rwdi/Isbd

After the 3-year boom in real estate market, the pace of construction sector slowed down mainly because of political turmoil initiated by the assassination of a national leader. The political instability is still going on and the economic recession persists. Hence, the sector faced a negative growth of 3.9% and 10.8% per annum during 2007-08 and 2008-09, respectively.

[Source: Secondary sources/market sources]

Size of bricks market

Excluding the C-grade bricks, the net market in Pakistan is estimated to be around 53 billion bricks per annum, while 26 billion bricks in the target regions. The detail of market is as under:

	Overall market		Market in target regions	
	Volume (billion bricks)	Value (billion Rs.)	Volume (billion bricks)	Value (billion Rs.)
A-grade bricks	44	114	22	57
B-grade bricks	9	16	4	7
Total	53	130	26	64

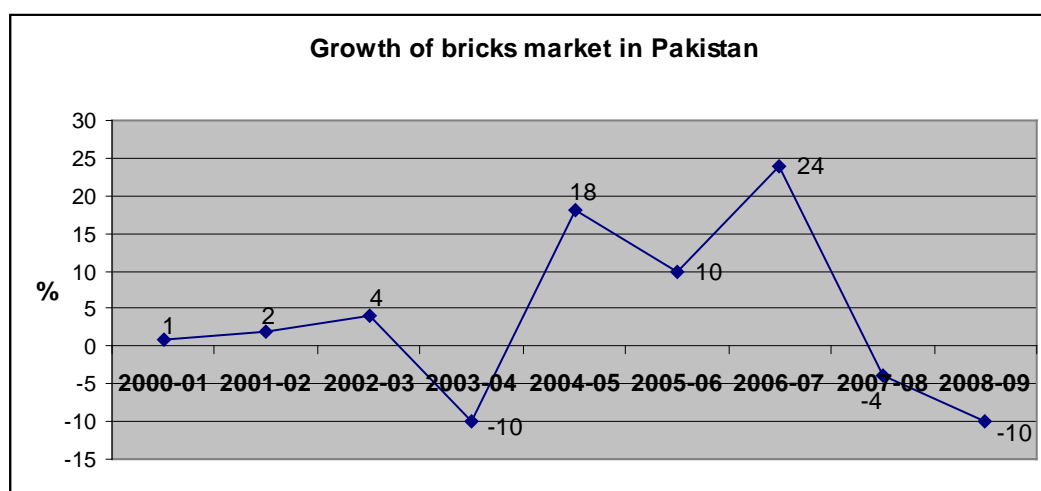
[Source : Industry estimates]

Growth of bricks market

As per the market sources, the growth of bricks market is closely associated with the growth of construction sector. Hence, the tentative growth of bricks market is as under:

	Growth (%)								
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Construction sector	0.5	1.6	4.0	-10.7	18.6	10.2	24.3	-3.9	-10.8
Bricks market	1	2	4	-10	18	10	24	-4	-10

[Source: Economic Survey of Pakistan/Market sources]

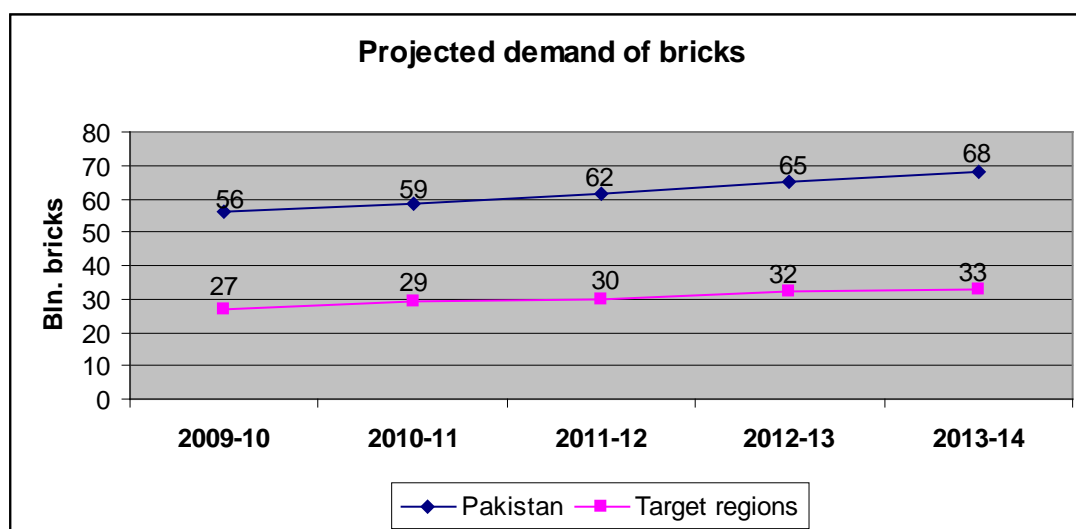


Projected demand of bricks

As per the market sources, the market for bricks is less likely to regain its position of 2004 to 2007 in the near future owing to the ongoing law-and order situation, political uncertainty and economic slow-down. The market might grow in the range of 3 to 7% for different years making the average growth at 5% during the next five years. The estimated average growth and respective market size are exhibited as under:

		2009-10	2010-11	2011-12	2012-13	2013-14
Pakistan	Growth	5%	5%	5%	5%	5%
	Market size (bln. bricks)	56	58	61	64	68
Target regions (Centre-North Punjab & NWFP)	Growth	5%	5%	5%	5%	5%
	Market size (bln. bricks)	27	29	30	32	33

[Source: Market estimates]



The national market of fired bricks in Pakistan is projected to reach the level of 68 billion, while that of the target regions to 33 billion per annum by 2013-14.

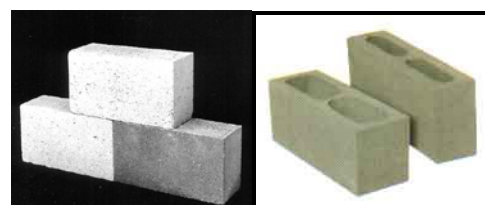
Substitute of bricks

Different substitutes of bricks exist in Pakistan. These include:

Product	Consumption areas	Intensity
Cemented blocks	Widely in Karachi, while rarely in other cities	100% substitute of fired bricks in Karachi. Meager use in other areas of the country
Pre-cast walls/roofs	Throughout Pakistan	Significantly used in industrial buildings and agricultural/industrial boundary walls
Chiseled stones	Mountainous areas	Widely used in mountainous areas
PU Sandwich panels	Urban and industrial areas	Newly introduced concept. Presently, rare usage in large retail and industrial projects.

[Source: Industry/market sources]

- Due to non-existence of fired bricks industry in Karachi, cemented blocks are used there for decades. Also, post earthquake constructions in mountainous areas have preferred the use of lighter materials including hollow cement blocks.



Cement blocks

- As the weight and cost of hollow cement block (HCB) is lighter than bricks, their usage in external and internal partition walls of building structure reduces the weight and total cost of the structure.
- cement blocks are perceived as cost effective but less durable as compared to the fired bricks. Though some builders in Lahore, Rwdi/Isbd. and Faisalabad have also used blocks in commercial projects, but the concept has not been welcome and the fired bricks remain the top choice of property owners, architects and builders in these cities.
- Mainly produced in cottage sector, the blocks are available in different sizes and compositions. The most common sizes are 15x7.5x3.5, 15x7.5x5.5 and 15x7.5x7.5 inch, etc. The majority of cement block producers exist in unorganized sector, however the organized sector suppliers include Izhar (Lahore-Karachi), National Builders (Lahore), Pak Dream (Hattar), Prime (Lahore), Envicrete (Karachi), Caracrete (Karachi), Hubcrete (Karachi), Magnacrete (Karachi) and Amcon Corporation (Islamabad), etc. Some builders in Karachi and Lahore install a temporary unit of block manufacturing at the site and produce the required block as the construction goes on. The usage of blocks is projected to grow phenomenally in Karachi, but penetration in rest of Pakistan is not expected. Hence, cemented blocks are not going to put any negative impact on current market of bricks.

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**Substitute of bricks
(Contd.)**

- Pre-cast roofs were introduced 20-25 years back and have now got good penetration, especially in industrial projects. On the other hand, pre-cast slabs and pillars are relatively newer introduction and have been used by some builders to build boundary walls of industrial units, farms, warehouses and housing societies. The aspects of fast erection and portability/re-usage are contributing to the acceptability of pre-cast roofs and walls. Though these products have got considerable penetration, the share in overall construction is still insignificant. Hence, pre-cast roofs are not likely to put any significant impact on bricks market in Pakistan.
- Non-existence of brick kilns in elevated mountainous areas and difficult transportation of the same makes chiseled stones the basis construction material in elevated mountainous areas and people have been using stone masonry even before bricks were introduced there. Stones are readily available there and are cost effective. However, bricks are becoming substitute of stones in these areas; still the conversion is quite slow. The consumption of stones is projected to decline due to high urbanization and the preference for seismic risk proof materials in these areas.
- Polyurethane Sandwich Panels are imported into the country to be installed in large industrial buildings, warehouses and retail stores. Fast erection and low thermo-conductivity are the factors that make it preferable for some entrepreneurs. No major supplier of PU panels exists in Pakistan; rather these are mostly imported directly by the projects owners or builders. Though the current usage of these panels is very low, a high growth in their demand is projected by the market players.
- Despite the existence and growing penetration of substitute products, fired bricks remain the most preferred building material because of their strength, durability, easy availability, affordable rates and cultural association of users.

[Source: Industry/market sources]

Trend of urbanization

The share of the urban population in Pakistan has grown from 17% in 1951 to 32% in 1998 and further to 35% in 2009. The level of urbanization in Pakistan is now the highest in South Asia. The urban population contributes about three quarters of Pakistan's GDP and almost all of the government revenue.

[Source: United Nations Population Fund]

The following table exhibits the trend of urbanization in the country.

(Figures in million)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009 [Estd.]
Overall population	139	142	145	148	151	154	157	160	163	167
Urban population	46	47	48	49	51	52	54	56	57	60
Urbanization	33%	33%	33%	33%	34%	34%	34%	35%	35%	36%

[Source: Economic Survey of Pakistan 2008-09]

As per the UN Population Fund, Pakistan's urban population is likely to be equal to its rural population by 2030. An expected positive consequence of the increasing urbanization of society will be the creation of over 100 million strong middle class by 2030. This large urban population will create increased construction activity giving further boost to the demand of bricks in the country.

[Source: United Nations Population Fund]

Brick prices

The present ex-kiln price of A-grade bricks in the target regions stands in the range of Rs. 2700 to 3800, while that of B-grade in the range of Rs. 1800-2200 per 1000 bricks. Due to strong demand in large consuming centres like Lahore, Rawalpindi, Islamabad and Faisalabad, the brick prices there are 10-20% higher than in small cities and towns.

The growth in prices of bricks has been reflected by the following index numbers over the years:

(Base year 2000-01 = 100)

	Index No. of average price during the year						
	2000-01	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Index No.	100	102.5	104.8	122.7	129	111.6	119.3
Growth per annum	-	-	2%	17%	5%	-13	7%

[Source: Statistical Yearbook of Pakistan / FBS Monthly Statistical Bulletin]

The average growth in brick prices has been recorded as 8% per annum.

The pricing of bricks is highly affected by supply and demand situation and the obligation for the kilns to be run on full capacity. During 2005 to 2007, the construction sector experienced tremendous growth. The launch of mega projects in private and public sector created huge demand for bricks and the growth in prices was highest, i.e. 17% in 2005-06. But the growth rate again came down the next year to 11% as a number of new kilns had added into the supply and neutralized the strong demand with large supplies.

The position of brick industry further worsened by the sudden deterioration of law-and-order and political situation in the country in December 2007. This unfavorable condition badly damaged the construction sector and squeezed the demand of bricks causing further decrease in profit margins of brick producers. As the kilns are bound to be run on full capacity, almost all the kilns had to bear heavy production losses, while many of them were forced to shut the operations. However, the closure of some brick units put a positive impact on the operational units as the demand and supply balance improved and the prices again got better.

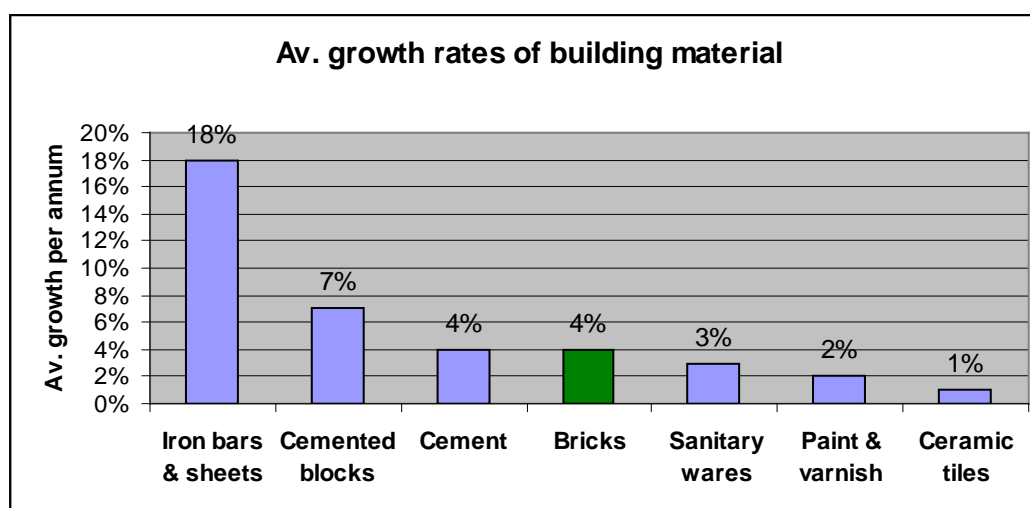
Presently, the operational kilns are reporting to have good profit margins. But, the demand and supply situation is again likely to be disturbed and the brick prices might again come down as the closed units are preparing to resume their operations.

Comparative growth in prices

The comparative growth in prices of bricks and other construction material is as under:

Product	Index No. of average price during the year							Av. Growth per annum
	2000-01	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	
Iron bars & sheets	100	147	177	166	175	233	319	18%
Cemented blocks	100	109	113	114	117	120	151	7%
Bricks	100	102.5	104.8	122.7	129	111.6	119.3	8%
Cement	100	102.5	105	123	129	112	119	4%
Sanitary wares	100	107	109	112	115	118	125	3%
Paint & varnish	100	115	113	107	107	110	128	2%
Ceramic tiles	100	96	98	98	101	105	99	1%

[Source: Statistical Yearbook of Pakistan / FBS Monthly Statistical Bulletin]



- The prices of bricks have been increasing at an average rate of 4% during the current decade, while those of iron bars and cemented blocks at 18% and 7% per annum, respectively.
- The growth in prices of cement remained equivalent to that of bricks, while the growth in case of sanitary wares, paint & varnish and ceramic tiles was relatively lower.

Recommendations

- The present concern of brick producers, builders, architects/engineers, end-users and general public towards environment is quite low. They don't consider brick industry as a large pollutant as kilns mostly exist away from urban population, while peri-urban and rural population is also not so affected because of very high chimneys of these units. They report that other pollutants like road transport, railways, chemical factories, cement factories, crushers, open drains and solid waste pose rather serious threat to environment and human health. If the people are less conscious about these larger sources of pollution, brick kilns don't come under any of their concerns. The builder and architects/engineers think that environment friendliness might be an important aspect in decision of brick selection, but it will not impact the decision process so seriously as the bricks used in Pakistan are harmless to health, no matter these are produced in a pollution generating unit. Hence, EEBP will need to launch a campaign to generate awareness among regulatory agencies, builders/architects, end users and general public. In this way, awareness programs can be launched in collaboration with Pakistan Environment Protection Agency.
- Cost effectiveness of VSBK should be chiefly highlighted as the increasing cost of fuel, labor transport has reduced the profit margins of brick producers and many of them have been severely affected by this. The main focus of the marketing VSBKs should be cost, and not the environment friendliness.
- The control on production volume at VSBK through multiple shafts is another advantage that can appeal the existing kiln owners and new entrepreneurs. In conventional kilns, the owner is bound to carry on with its full production no matter the market demand and cash-flow situation allows it or not. Hence, the kilns are to be run even during market recession and so bricks be sold on lower rates that cause losses to the owners. The kiln owners have no choice of controlling the volume of brick production. On the other hand, the VSBK owners will be able to control the production volume by running or closing any shaft of the kiln. This aspect is also recommended to be highlighted.
- More pilot VSBKs should also be developed in other areas like Lahore, Sialkot, Sargodha and Faisalabad. The clusters of kilns in these areas will be able to observe the VSBK technology once it is in operation near them. In this connection, PR should be developed with the opinion leaders of this industry (i.e. union office bearers).
- As VSBKs require a large investment, some partnership with government agencies or banks should be developed to ensure easy and economical access towards financing options for entrepreneurs. In this connection, Small & Medium Enterprise Development Authority (SMEDA) can be of much help.
- Further to this desk research, quantitative and qualitative surveys are suggested for in-depth analysis of production and consumption patterns in the country. In such surveys, concepts should be properly tested through detailed concept cards and demonstrations.